

Route based forecasts can save you a fortune

The development of route based forecasts is an innovative approach to road weather hazard forecasting. Route based forecasts are becoming more and more popular among winter maintenance authorities with the promise of increasing efficiency – with tightening winter maintenance budgets and ongoing austerity measures, proving cost savings is more essential than ever.

The Met Office is a major provider of route based forecasting solutions and has recently carried out a survey across a sample of customers from local authorities and winter maintenance contractors to establish the savings that customers can expect when acting upon route based forecasts instead of traditional 'domain' based forecasting techniques.

The survey suggests that winter maintenance operators can make savings in excess of 25% of their total network treatment on a marginal night.

Route based forecasting vs. traditional 'domain' based forecasting

The accurate prediction of ice and snow on the road network is vital to ensure safety on the roads and efficient allocation of salting resources. Whereas traditional domain forecasts may recommend the salting of all routes in a domain on marginal nights, route based forecasting aims to provide more accurate information to maintenance operators by identifying specific routes (or segments of routes) needing treatment.

Industry-leading science

The Met Office's innovative route based forecasting solution is one example of where a new generation of forecasting systems has been developed. It harnesses advances in weather forecasting technology into operational products to help winter

maintenance operations. Traditional domain forecasts use observational forecast points within a network to provide a blanket forecast for that area, whereas route based forecasting scientific modelling provides a much larger number of forecast points along actual network routes. For example, instead of 20 observational points, a user could have 1000 forecast points for the same area. The technique takes into account factors that may influence road surface temperature, for example, shading by high buildings or trees, traffic flow and road construction. The aim of route based forecasting is to increase the accuracy of road weather forecasts over and above what is possible using traditional domain based forecasts.

Putting the savings into context

The survey conducted by the Met Office took place during periods with marginal nights during January to March this year. Forecasts from domain based forecasts were compared with those from route based forecasting for the same area. On many occasions the domain forecast would recommend gritting all routes, whereas the route based information enabled a partial treatment of selected routes within the domain.

A sample of customers was selected from across the UK including Highways Agency contractors and Local Authorities. The results were calculated by looking at the lengths of each network and comparing the amount of road surfaces that would

have been treated using domain based forecasts instead of following the route based forecast output. While route lengths and road conditions can differ, the survey concluded that all customers sampled would make significant savings by using route based forecasts.

The savings that can be expected vary depending on length of routes and weather conditions but overall findings concluded that on average, route based forecasts would save gritting 26% of the overall network on a marginal night thus making a substantial saving. The average number of marginal nights per winter is 1:3 (equivalent to circa 70 nights per winter).

Case study – optimising route based forecasts

Savings can be further increased when route based forecasts are taken in conjunction with 'route optimisation', a one-off consultancy service from the Met Office that ensures winter maintenance services are delivered in the most efficient way possible.

For example, the Met Office worked with Devon County Council (DCC) which wanted to save £250k from its annual winter maintenance budget. With road safety and efficiency in mind, the aim was to reduce mileage, fuel, fleet and labour costs without compromising safety. So far DCC has saved £200k by reducing the number of routes to treat through climatologically enhanced route optimisation.